

In re: Appln No. 09/707,685
Amendment dated January 20, 2004
Reply to Office action of July 17, 2003

Atty Docket: 6006-015

Remarks

Claims 14, 18-20, 23, 29-33 and 35-38 were pending prior to the present amendment. Upon entry of the present amendment, new Claims 39-66 are pending, wherein Claims 39, 47, 54 and 59 are independent claims. At the filing of the present application, Applicants paid for 28 claims and 4 independent claims. Upon entry of the new claims, there are 28 claims and 4 independent claims pending in the application. Because the number of independent claims and the number of total claims are equal to the largest number of pending independent and total claims in the application to date, it is believed that no additional claim fees are required.

The new claims are based in part upon the canceled claims with additional limitations directed to control of the heterogeneities (supported at p. 10, lines 22-30); deposition rates of about 20 nm/sec (supported at p. 11, line 22); rotating the substrate (supported at p. 12, line 16); and particular nickel compositions (supported at p. 14, lines 12-18).

I. The 35 U.S.C. 102 rejection of Claims 14, 19, 29, 30, 33 and 35-38 over Clubb, et al. (U.S. Patent No. 6,203,732; "Clubb") is moot in view of the amendments presented herein and should be withdrawn.

The rejection under 35 U.S.C. §102 in view of Clubb is moot in light of the amendments to the claims. However, with the prospect that the Examiner may apply Clubb to the pending claims, Applicants will address the application of Clubb. Anticipation under 35 U.S.C. §102 requires that "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). *In re Robertson*, 49 USPQ2d 1949 (Fed. Cir. 1999). It would be improper to apply Clubb to the pending claims because the reference fails to disclose each element of the claims.

Clubb does not anticipate any of the pending claims, because it does not teach

vacuum depositing a stent-forming metal onto an unpatterned, exterior surface of a generally cylindrical substrate at a deposition rate that controls a formation of heterogeneities to form a generally tubular, unpatterned metal film (Claim 39);

vacuum depositing nickel and titanium onto an exterior surface of a generally cylindrical substrate to form a generally tubular film of nickel-titanium having no less than about 51.5 atomic percent nickel (Claim 47);

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vacuum depositing nickel and titanium onto an unpatterned, exterior surface of a generally cylindrical substrate at a deposition rate that controls a formation of heterogeneities to form a generally tubular, unpatterned film of nickel-titanium having no less than about 51.5 atomic percent nickel (Claim 54);

OR

vacuum depositing a device-forming metal onto an exterior surface of a substrate under a condition that controls a formation of heterogeneities to form a metal film (Claim 59).

The Examiner erroneously alleged that Clubb discloses controlling the formation of heterogeneities (citing Col. 5, lines 12-20). The cited passage refers to nothing about heterogeneities or homogeneous surfaces. It merely provides for multiple masking and etching to vary the depressed pattern, and use of multiple layers of materials, including a radiopaque layer. For at least this reason alone, Clubb cannot anticipate any of the pending claims.

With respect to Claims 39, 54 and claims depending therefrom, Clubb teaches the formation of a pattern on a substrate, depositing the device-forming material on the substrate in conformance to the pattern, then disposing of excess material to form a device according to the pattern formed during the deposition. By contrast, Claims 39, 54 and claims depending therefrom all provide for an unpatterned exterior surface of the cylindrical substrate. Accordingly, when the device-forming metal is deposited on the substrate, there is no pattern in the metal film. For these claims, the device pattern is defined on the metal film after deposition, rather than by removal of material until a preformed pattern that was defined during deposition is revealed. In other words, Clubb forms the stent pattern during the deposition process, while Claims 39, 54 and claims depending therefrom form a blank during the deposition process, then separately defines the device pattern. This is a further reason Clubb cannot anticipate Claims 39, 54 and claims depending therefrom.

With respect to Claim 47, it is believed that heretofore, vapor deposition has been unable to produce a nickel-titanium composition having no less than about 51.5 atomic percent nickel. Nothing in Clubb indicates the ability to produce such a composition. For the foregoing reasons, Applicants respectfully request withdrawal of the application of Clubb as an anticipating reference.

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II. The 35 U.S.C. 103 rejection of 14, 18-20, 23, 29-33 and 35-38 over Roth (U.S. Patent No. 6,069,175; "Roth"), Clubb and optionally Busch et al. (U.S. Patent No. 5,061,914; "Busch") is moot in light of the present amendment and should be withdrawn.

The rejection under 35 U.S.C. §103 in view of Roth, Clubb and optionally Busch is moot in light of the amendments to the claims. However, with the prospect that the Examiner may apply a similar rejection to the pending claims, Applicants will address the application of these references. In order to render a claimed invention obvious, the reference cited by the Examiner must not only collectively teach or suggest each and every element of the rejected claims, but a teaching or suggestion must also exist for the combination of the citations to arrive at the claimed invention.

As discussed above, Clubb teaches neither the control of the heterogeneities during film formation by vapor deposition, nor a Ni-Ti composition of at least about 51.5 atomic percent nickel. The deficiencies of Clubb is not cured by Roth, because it also does not teach control of heterogeneity or a Ni-Ti composition of at least about 51.5 atomic percent nickel.

The Examiner erroneously alleged that Roth discloses controlling the formation of heterogeneities (citing Col. 65, lines 10-15). The cited passage refers to nothing about heterogeneities or homogeneous surfaces. The citation merely indicates that different materials (e.g., titanium and nickel) may be used in the sputtering technique. It is noted here that, at best, the Roth teaches the use of an about 50 atomic percent Ti Nitinol as the target (col. 7, lines 38-40).

The foregoing deficiencies are also not cured by Busch. The Examiner alleges that because Busch teaches precise control of the metal composition and crystal structure of the deposited metals (citing col. 7, lines 50-58; col. 8, lines 30-40), that it would have been obvious that vacuum deposition controls the heterogeneity of the metal. This allegation only points to the deficiencies of all of the cited references -- none teach or suggest control of the heterogeneities. Busch is directed to microactuators made from shape-memory metals. Although the metal composition may be of value to this art, heterogeneity of the resulting metal is not addressed at all. This is not unexpected, since control of heterogeneity is useful for biocompatibility of the

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subject of the present application, while microactuators are only concerned with transitional properties of the shape-memory metals.

The fact that Busch does not teach controlling heterogeneities is further reinforced by the admission that the films made in Busch do not show any appreciable crystal structure (col. 8, lines 24-29) and a separate annealing process was necessary to crystallize the film samples (col. 8, lines 46-47). In the present invention, control of heterogeneities requires formation of crystalline structures. Further, the annealing process actually introduces heterogeneities to the surface, since it annealing introduces impurities that create heterogeneities. It is also unpredictable as to how the impurities are incorporated into the metal. In addition, the Ni-Ti compositions cited in Busch also do not teach at least about 51.5 atomic percent nickel (see col. 7, lines 11-25 directed to about 50 atomic percent Ti and 50.25 atomic percent Ti).

Not only do the cited references fail to teach or suggest that the references were properly combinable, but even when combined, the cited references still fail to teach or suggest each and every limitation of the claims. Accordingly, Applicants respectfully request withdrawal of the obviousness rejections base on the combination of Clubb, Roth and Busch.

Summary

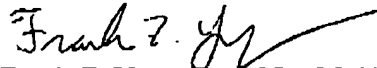
Applicants respectfully submit that the cited references do not teach every limitation of the presently pending claims, and cannot be properly combined to render any claim obvious. Accordingly, Applicants respectfully request allowance of the pending claims. Should the Examiner require any further information or wish to discuss any aspect of this Response, Applicants respectfully request that the Examiner contact the undersigned at the telephone number listed below.

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With this response, Applicants respectfully petition for a three-month extension on the response deadline. As indicated in the accompanying Notice of Change of Entity Status, Applicants has changed the entity status to that of a large entity. The director is hereby authorized to deduct the extension fee and any other fee required for this response from deposit account 18-2000. This page is submitted in duplicate.

Respectfully submitted,



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January 20, 2004

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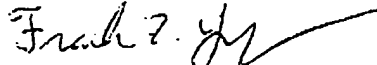
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